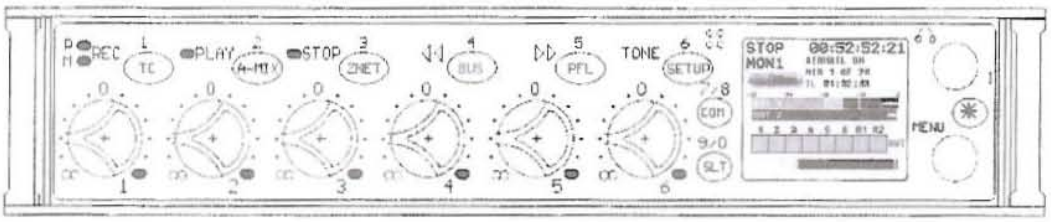
Nomad Preliminary Manual



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Overview

Nomad is a new concept in location sound recording and mixing. It redefines the function of bag audio system. A simplified user interface eliminates the need for hardware trim controls, pan and PFL switches. Nomad eliminates any possibility of clipping analog inputs; it provides wireless time code transmission, wireless IFB transmission, and wireless remote control to Zaxcom wireless units. Nomad also features a visual slate and provides metering, monitoring and mixing capabilities far beyond any other current multi track mixer/recorder combination. All of this is in a package that is smaller, lighter and consumes up to 50% less power than current solutions.

Nomad can record up to 12 audio tracks and mix audio for a variety of applications. While Nomad has been designed for use in the film and television industries, its exceptional audio quality and feature set makes it a clear choice for any application that requires high resolution audio mixing and recording. 10 analog inputs and 8 AES inputs may be mixed to 8 output busses as well as 2 separate headphone output busses. The unit is designed to be the highest reliability recorder available. Nomad records on all solid state media, it has very low power consumption this makes the Nomad the best choice for location sound recording.

In addition features like Zaxnet time code transmission, wireless IFB transmission, wireless microphone remote control, visual slate display, MP3 recording and wireless file transfer make the Nomad a unique product that will set a new standard for location sound recording.

Microphone preamplifier

Nomad contains six mic/line level inputs. Each input is individually configurable. A super low distortion and super low noise amplifier provides studio like performance in a portable package. A hardware based high pass filter is used to limit distortion due to low frequency vibrations and wind noise. The input dynamic range is 135 DB. And each input utilizes two A-D converters to achieve the unprecedented dynamic range. If enabled a soft knee compressor automatically normalizes the input dynamic range to a more typical 115 DB. This compression system uses a look ahead architecture that provides the most natural sound available in a location mixer recorder. Nomads input architecture is a transformer free design. Transformers contribute to a large amount of low frequency distortion that is not desirable under any circumstances.

Auto Trim

Auto-trim eliminates the need for hardware trim knobs. The auto-trim mode is enabled in the Mode selection menu. When enabled, auto-trim will route the input trim function to the menu knob based on the last fader knob that was adjusted. In many of the home menus an input meter with a floating diamond will show the current trim setting of the channel that will be adjusted by the auto trim function when the encoder is adjusted. A blue LED indicator a lamp located next to each fader points to the channel that is being adjusted by Auto-trim. When Auto-trim is not selected the channel setup menu is used to adjust the input level of each of the six main input channels. The floating meter diamond indicates the relative position of the input trim adjustment.

Input Limiters

When mixing for film and TV production it is desirable to record audio with the most dynamic range possible. The problem is that actors can vary their performance in a way that is unexpected and can cause input clipping and limiter distortion. In an effort to provide a quantum leap forward over existing mixing technology Zaxcom designed Nomad so that the need to utilize the input trim controls and input limiters, to prevent the input preamp distortion typical of unexpected high levels of audio, is unnecessary.

Nomad has a very unique input structure. The input dynamic range of Nomad is 135 dB. Therefore it is impossible to clip Nomads input.

In practical use inputs are set so that a microphone input peaks at -20dB FS to -10dBFS as is the case in any typical mixer.

Nomad will allow an input to exceed the typical 0dBFS range by 20dB (FS+20dB) without any risk of clipping. With 135 dB of input dynamic range, 30 db of head room and a floating point mixing system, the need for any use of the trim control during normal operation is eliminated. Faders are all that is needed to control the level of an input channel mixed to an output or recorded track.

Even though the traditional input limiter is not needed, a soft knee compressor is provided on each mic/line input and each output and recorded bus.

General graphic user interface operation

All menu functions of nomad are accessed by pushing in the menu knob Adjustments are made by a combination of turning and pushing in the menu knob. Pushing in the headphone knob will act as a back key taking Nomad back one level. Nomad's menu system is configured in the same way as a conventional mp3 player. A right pointing arrow associated with any menu item indicates a path to another menu. Any selectable function will be highlighted with a blue background.

Powering Nomad

Nomad is designed to be powered from external DC voltage. A nominal voltage of 12 volts is recommended. The unit will draw approximately 500 milliamps at 12 volts. The maximum allowable input voltage is 18 volts. Nomad's internal battery functions as an un-interruptible power source. If internal batteries are loaded, six nickel metal hydride or lithium batteries mandatory as the internal power source.

Never use alkaline batteries in the Nomad. They will only last a few minutes and they will get very hot.

Nomad will keep the internal batteries charged as long as the internal charging circuit is enabled in the engineering setup menu. If non rechargeable batteries are utilized the charging circuit must be disabled or damage to Nomad may result. The charging circuit will take up to 24 hours to return the batteries to a full charge. It was designed to keep the internal batteries ready for use when external power is lost. Nomad's internal battery can be quickly changed if they are drained by continuous use.

Nomad will dynamically adjust its power consumption based on the amount of inputs and outputs utilized. Due to nomads efficient design very little if any heat is generated by nomad.

Software updates

The Nomad software is easily updated. The operating system is "brick" proof. To update Nomad copy the current software from the Zaxcom web site to a compact flash card. The card should have a FAT32 format from a PC/MAC or Zaxcom recorder product. Insert the card in the mirror slot. With the power off, press and hold the "*"key, which is located between the headphone and menu knob. Now switch on the power. After the display screen comes up the "*" key can be released. The Nomad will find the software update on the mirror card and begin the update process. It is important to have a reliable power source while the unit is updating. The software version can be viewed in the about Nomad menu accessed in the main menu.

The boot loader searches for the first program file it finds on the card. When placing a program file onto a card using a PC or MAC be careful to delete any older nomad program files on the card BEFORE coping the new program file to the CF card. This will prevent the nomad from accidentally finding the old program file inadvertently (even though it was deleted).

It may be wise to always format the CF card with a MAC, PC or Nomad before copying a nomad program file to the CF card.

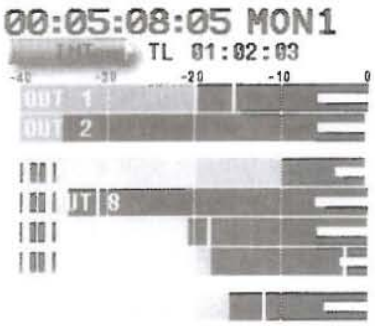
Boot-Loader programming

The Nomad boot loader (currently version 12) should never need to be updated. If instructed by the factory, the boot loader can be updated by entering the "advanced setup menu" from the ENG setup menu. Follow the instructions on the Nomad screen to update the boot loader.

The boot loader (currently V12) is a small program that runs when the unit powers on.
It normally reads the main program from ROM and executes it.

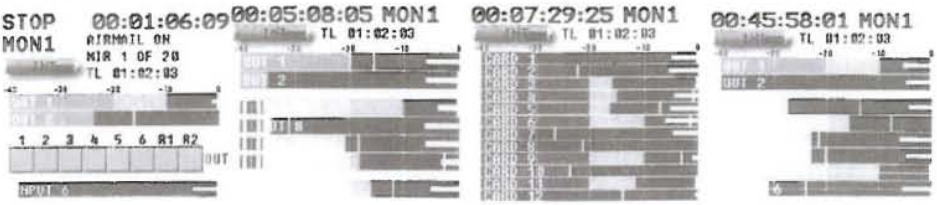
If no program is fond in internal ROM the boot loader will attempt to boot from a program on the CF mirror card automatically.

Meters



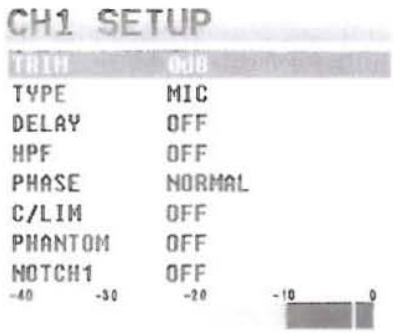
Nomad meters are the most comprehensive of any location recorder there are several selectable metering options to choose from. The color of the meter under the -20 level indicators will indicate the source type being metered. Light blue for input, Green for output busses and Purple for recorded tracks. The track name is indicated within the meter itself to aid in channel identification. If a compressor is engaged a white gain reduction indication will appear at the left side of the meter if the compression threshold has been exceeded.

Home menus



Press and hold the menu knob while pressing the "COM" button or the "SLT" button will toggle through the metering menus. Eight different home menus are available. Two menus can be stored for fast access, one under the "COM" and one "SLT" keys. Repeated operation of the "COM" button or the "SLT" button will cycle through the available home menus.

Channel Setup



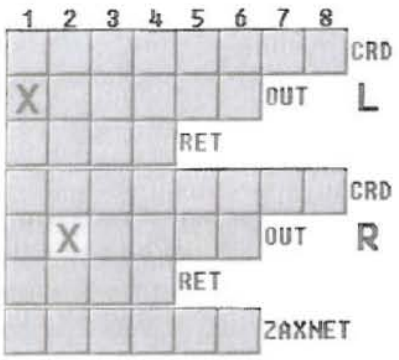
Pressing the setup key will enter the channel setup menu. When in the channel setup menu, pressing any of the six multifunction keys located near each control knob will select the input channels one through ten. An input meter is provided in each setup menu to help adjust trim in each channel. Push and rotate the menu knob to select and change each channel input function. Channel input functions include: input trim, input type, channel delay, high pass filter, phase, compressor limiter, phantom power select and notch filters. Use the headphone back button to return to the home menu. Notch filters have separate On/Off and frequency adjustments. Notch frequencies can be entered by utilizing the function keys on the nomad as well as the menu knob.

Tone Generation

Nomads tone generator is individually routable to each output and recordable channel. Tone is assigned by selecting a tone cross point in the bus menu. A "T" indicates the tone cross point column. To enable tone generation hold down the menu knob, then press the setup button. Pressing and holding the setup button for approximately one second will also enable or disable the tone. Tone level and frequency can be adjusted in the Engineering Setup menu.

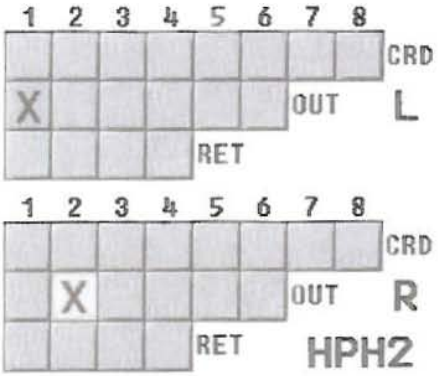
Main Headphone Monitoring (1/4 inch jack)

Nomad's main headphone has 12 Monitor Memories. Nomad can be set up to monitor any combination of card tracks, output busses, or returns. If selected wireless microphone receivers can be monitored directly through the Zaxnet System on Nomad 6, 8 and 12.



To setup the monitor memory selection press menu knob and headphone knob at the same time. Use the menu knob to select the desired monitor cross points to change. Any combination of monitor cross points can be engaged depending on user preference. Pressing the headphone switch will cycle through all of the available monitor memories. Each of the monitor memories can be individually labeled through the engineering setup menu. Nomad contains the most comprehensive headphone monitoring system of any location sound mixer. Press and hold the headphone knob to escape the headphone 1 routing menu.

Headphone 2 monitoring (3.5 mm jack)



Nomad provides a secondary headphone stereo output bus. The cross point selection is made in the bus routing menu. The level control for the headphone 2 output is located in the ENG setup menu. The menu above shows outputs 1 and 2 sent to headphone out 2 left and right isolated.

Recording

Media selection

Nomad currently works best with 32 gig 133x CF cards. Sandisk, Transend, Kingston and Delkin cards usually work well with Nomad. Contact your dealer to get recommendations on the best memory cards to use. Because there are 100s of cards available and the list constantly changes contacting the dealer is the best source of card information. Purchasing higher performance media will not increase performance and may not be compatible with Nomad.

Transport controls

Record, Stop and Play are always directly available by pressing the corresponding keys on the nomad control panel. The functions are either shifted or un-shifted depending on the state of the transport key function in the Engineering Setup menu.
Nomad factory default is set that the TC, Automix and Zaxnet buttons primary function direct entry non-shifted functions. Tto go into record, stop or play you will have to hold down the menu key, as a shift key, then press the corresponding key. Nomad will allow the REC/STOP/PLAY keys to be un-shifted to provide direct access to their functions. Meaning if un-shifted is selected and you tap the record, stop, or play keys their functions will access immediately. In addition if the un-shifted is selected to then access the TC, Automix, and Zaxnet menus become shifted and you will have to hold down the menu button before hitting these keys. If the transport functions are shifted, they are still accessible by holding the function keys for about 1 second to activate the function.

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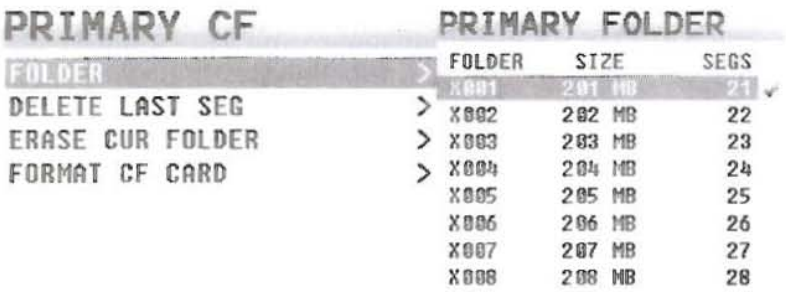
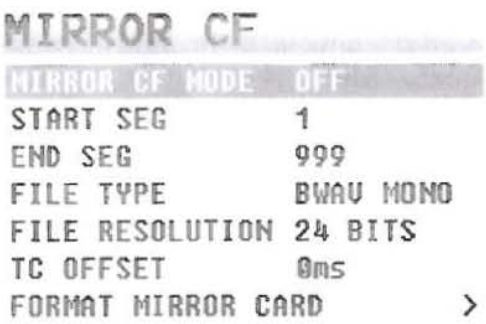
Primary card recording



Nomad is unlike any other recorder. The Nomad 4 and 6 can record to two Compact Flash cards at the same time. The Nomad 8-12 can record to two Compact Flash cards and either an external USB recording device or to internal micro SD card at the same time.

The Primary media uses the Zaxcom MARF file system. The advantage to this is that any power loss to the system while in record will not result in a loss of recorded audio as is common to all other portable recording systems. Nomad automatically closes all open files at the point the audio recording was interrupted with no loss of audio up to that point. The Primary media while using a proprietary file system is 100% compatible with mac or PC by utilizing the free file conversion utility Zaxconvert. This utility may be downloaded from www.zaxcom.com. The mirror card will record the files as a BWAV file.
All recorded files are directed to individual folders. The primary folder menu allows for a recording folder to be selected and erased. Holding the stop key while the Nomad is in stop mode will also allow for the deletion of the last recorded segment. The primary and mirror folders can be different or the same. If select to be the same then the mirror audio will be the same as the audio currently being recorded on the primary media.
Note all primary and mirror cards must be formatted by Nomad before use. Currently 32gig cards are the largest recommend for use in Nomad. Check with Zaxcom for a current update on this restriction.

Mirror card recording

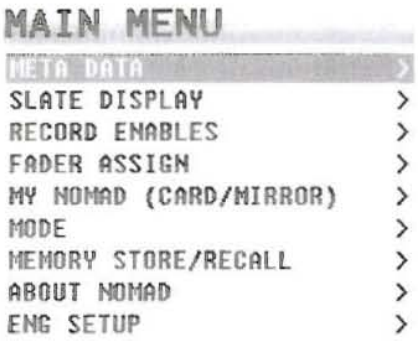


The mirror CF menu controls the recording of the mirror CF card. The mirror card will record from the selected start segment to the selected end segment. The start segment will automatically increment with each new recording of the primary media. The file type and the file resolution are set in the menu. The type of file and resolution recorded is usually determined by post production. Broadcast Wave poly 24 bit is the most common format. The mirror card is formatted as FAT32. All files recorded in the mirror drive is fully compatible will all Mac and PC platforms. All new mirror card must be formatted in Nomad before use. Nomad can currently handle any size card up to a 32 GB card.
The mirror card is generally used as a deliverable format to post production.

Mirror recording has two operational modes. It can be set to mirror continuously (CONTINUOUS) or only when the Nomad is in stop mode (ON). Continuous mirror means when Nomad's primary card is recording the mirror card will record at the same time. Depending on the track counts the mirror card may lag behind a bit. Not to worry after you stop the primary card from recording the mirror card will catch up. The ON mode means that the mirror recording will start only when the primary card is stopped. This is useful when high track counts are mirrored and recorded files are short duration.

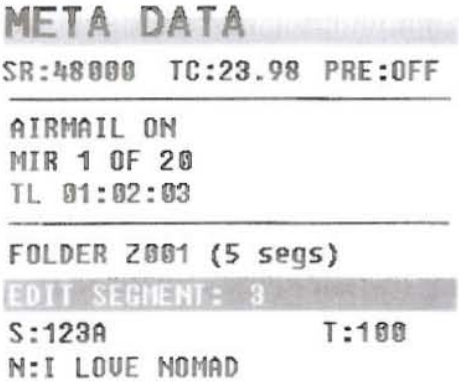
When mirroring you must set the mirror folder number to the folder you want to mirror. This is not necessarily the same as the primary folder. If the primary folder and the mirror folder are not the same number the wrong audio data may be mirrored.

Main Menu



From a home meter screen, press the menu knob to enter the main menu screen. Please note from some meter screens you may have to push and hold the menu knob for 1 second to enter the main menu.

Meta Data Menu

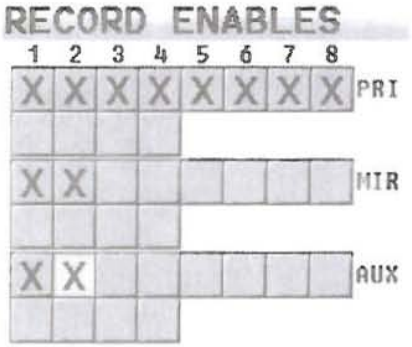


This menu displays key Nomad operating parameters as well as allowing for entry of metadata. Scene take and note metadata are selected with the menu knob and selected to enter the text entry menu. When a scene name is entered the take number will automatically go to a value of 1. When any text is entered the "OK" may be selected or press the headphone knob to take the new selected name. Meta-data for any recorded segment or the next recorded segment can be edited from the meta-data menu.

Slate Display

This display is used to show a visual time code slate to a camera. Pressing the menu knob will freeze the display and cause a 1 frame long beep tone in the audio on any bus that is selected for output tone. This is used to provide sync for the camera to match picture and sound. The slate numbers are intentionally up side down to make it easy for a camera person to shoot the numbers correctly.

Record Enables

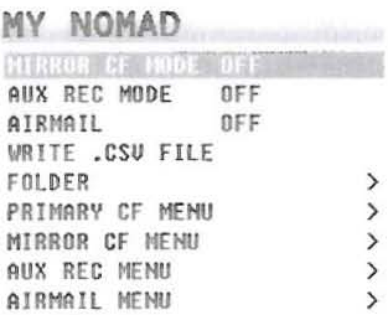


This menu enables the tracks that are to be recorded on each media. On Nomad 8 and 12, three media can be recorded at the same time. For a track to be recorded to the mirror or aux media it must also be recorded on the primary media. Simply said you cannot mirror a track that is not being recorded to the Primary CF card. The example pictured above shows 8 tracks recorded to the primary media with 2 tracks each recorded to the mirror and aux media. When a sample rate of 88.2 KHz or 96KHz is selected only 8 Primary tracks are allowed to be recorded. The record enables cannot be changed while the Nomad is in the record mode.

Fader Assign

The 6 hardware faders can be routed with the fader routing matrix. Go to the main menu and select "fader assign" to enter the matrix. Analog inputs 1-6, digital inputs 1-8 and analog trim controls can be routed to the faders. Masters can be made in order to better control surround microphones. Because the Nomad has a digital mixer no actual audio is going through the Nomad fader controls allowing for complete flexibility for the mixing hardware faders. Return inputs 7-10 may be used as line level inputs and are mixed with the virtual faders in the 10 channel mix home menu and cannot be assigned to a hardware fader. The pictured example above shows fader 1-4 controlling the fader functions of the channels 1-4. Fader 5 is controlling the input trim of channel 5 and fader 6 is a master for channels 1-4.

Card / Mirror Setup Menu



This menu controls the recording functionality of the Nomad. Each of the recording media can be accessed and controlled. The Airmail function for the wireless delivery of MP3 files is also accessed through this menu.

Mirror CF mode

Mirror mode enable is at the top of the menu. When enabled, the Nomad will mirror its files to the mirror compact flash card. Two mirror modes are available. The "ON" mode mirrors files when the nomad is in stop mode. This is ideal for "scene and take" style of production. The "CONTINUOUS" mode mirrors whenever the primary card is recording and is best for continuous recording like that of reality television. The segments to mirror are selected in the "MIRROR CF MENU". (See recording section of this manual for more information)

AUX REC MODE

When enabled, the Nomad will mirror its files to the aux media. This is only available on Nomad 8 and 12. The segments to mirror are selected in the "AUX REC MENU".

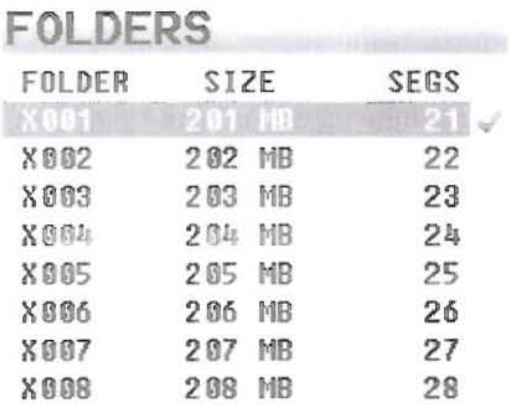
AIRMAIL

This will enable the transmission of MP3 files over wifi connections. See "AIRMAIL" menu for details.

WRITE .CSV FILE

This function will write a metadata list file to the mirror drive. It should be done after the last file is recorded so it can contain all of the information on the files recorded for post production.

FOLDER

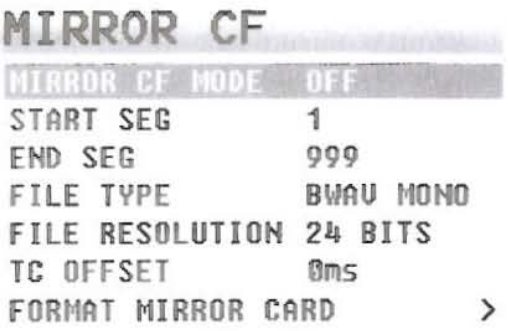


This menu allows multiple memory card folders to be created. A new folder can be chosen for each new job or day of production.

PRIMARY CF MENU

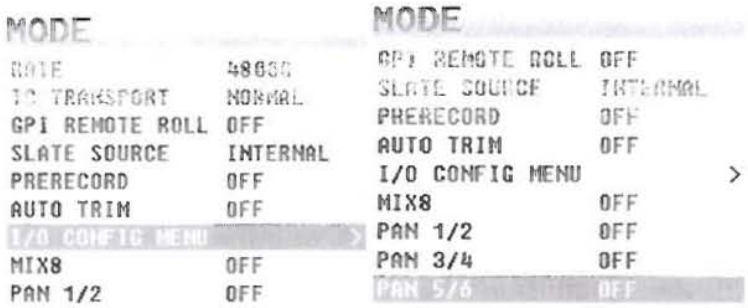
This menu allows for the control of the primary Compact Flash card.
Delete last segment erases the last recorded segment. This function is not recommended as erasing files can create differences between mirrored media and the primary card. Erase current folder clears only the current folder leaving the other folders untouched. Format CF card will completely erase the contents of the card. Nomad will ask if you are sure as this function erases primary card contents that cannot be recovered.
Please note all new cards must be formatted by Nomad with the function before recording is allowed. The card format is Zaxcom MARF. This format is not FAT32 compatible and if you want to use it with a Mac or PC platform it must be read with Zaxconvert.
Please see recording section of this manual for more information regarding primary recording

MIRROR CF MENU



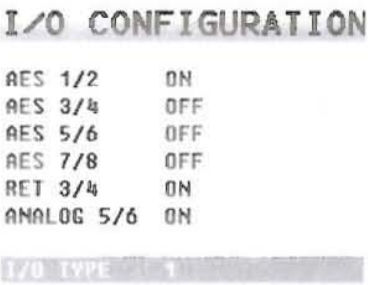
This menu controls the Mirror CF functions. Start and end segment controls which files are mirrored from the primary card to the mirror card. The segment end is automatically incremented with each new recording to the primary.
Please see the recording section of this manual for more information regarding mirror recording.

Mode Menu



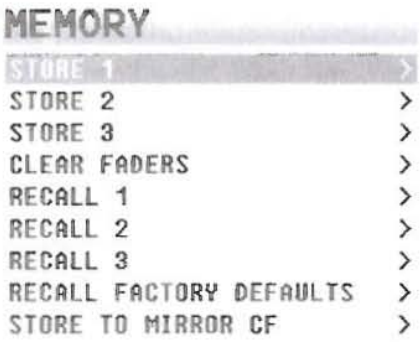
This menu is used to set the operating modes of the Nomad. Sample rate, transport control. GPI remote recording control, slate microphone source, pre-record time, auto trim control, I/O configuration, Mix 8 external fader enable and PAN menu routing controls are all found in the mode menu.
The Pan routing enables and selects which pair of outputs will be assigned to the two channel ENG pan routing feature. This mode would most likely be used when sending two channels of audio to be recorded directly to camera. When selected each pan pair will act as a left/right output pair. Example: if pan 1 / 2 is selected output bus 1 will be the left out and output bus 2 will be the right out.

I/O configuration



The factory default is set up that so that Nomad can handle one pair of AES inputs. If more than one pair of AES inputs is required, than the Input configuration must be changed in order to make the AES additional resources available. The I/O configuration menu is used to select between AES inputs and other nomad resources. Simply put for Nomads processors to handle the additional AES channels then other input items may need to be deactivated. Eight selections are provided to give you various options of AES inputs, tape return 3/4 and analog input 5/6. You can choose which option works best for you. To access the I/O configuration menu, enter the main menu, select the mode menu, and then select the I/O menu. The I/O configuration will not be altered after a factory reset of Nomad.

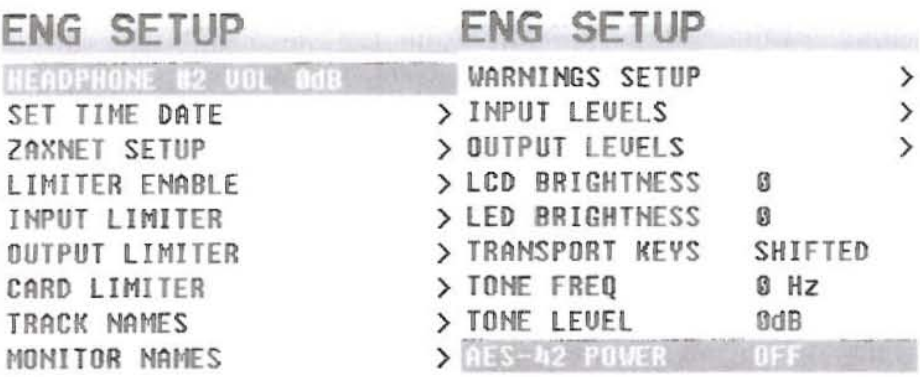
Memory Menu



This is used to save and recall the user settings. Three memories are provided. A factory default memory is also provided to restore the Nomad to its factory default settings. If factory defaults are recalled you will need to reset the user settings.

Nomad allows for settings to be saved to the mirror compact flash card. This will allow for settings to be exchanged between multiple Nomads.
Nomads internal settings are stored in flash memory contained within Nomad. External media is never necessary to maintain nomad memories.

Nomad Engineering Setup.



Nomad engineering setups are designed to configure the device for your specific application. To enter the setup menu go to the main menu and select the "ENG SETUP" menu.
This menu sets the input and output levels as well as other engineering parameters for Nomad. Use the menu knob to scroll through all of the

engineering parameters. All of the parameters will not fit on the screen at one time so the screen will scroll as you move to the lower parameters. Pressing the menu knob will select the current parameter and highlight it. Press the menu knob to select the function. That function will be highlight with a blue background on the menu screen. Rotate the menu knob to change the selected parameter. Press the headphone knob to exit the function.

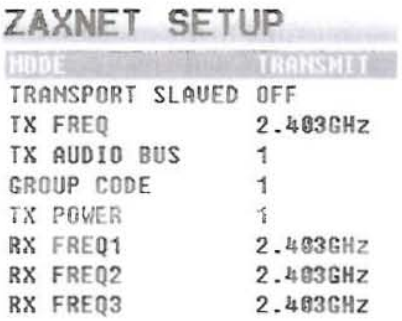
Headphone #2 VOL

This will adjust the output level of the Headphone #2 output (3.5mm) jack. This jack is designed to feed a headphone. It can also be used as a separate unbalanced output bus.

Set time and date

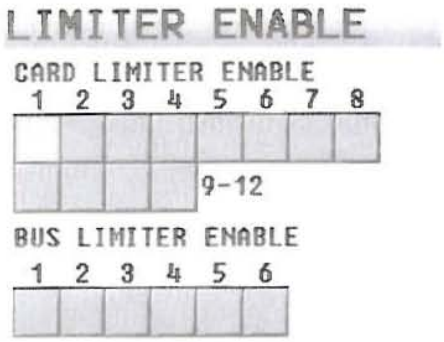
Nomad contains a battery backed real time clock and calendar. This is used to jam the time code and user bits. The clock keeps the time code running when the Nomad power is switched off.

Zaxnet Setup



This feature is currently under development

Limiter Enable

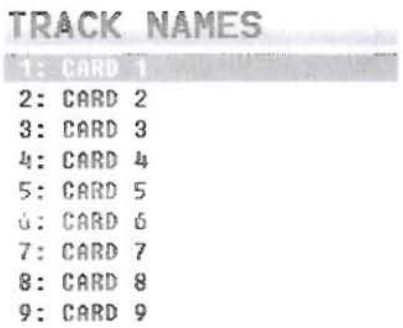


In this menu you can choose which card track and which output bus you want to engage the limiters on. Select the cross point in the matrix to enable the limiter. The limiter is implemented as a soft knee compressor. The limiters settings are adjusted in the output limiter and card limiter menus.

Output Bus and Card Limiter menus

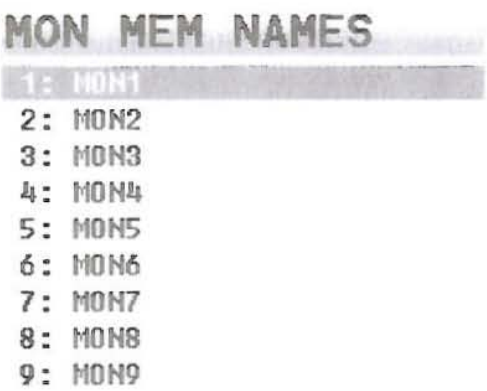
The output bus and card limiter menus allow for the adjustment of Limiter/Compressor parameters. The adjustments are on a global basis, meaning that all output or card channels that the limiter is engaged on will operate on the same settings that are set up in this menu. Nomad limiters have a factory preset setting. But the attack, decay, threshold, ratio and gain can be adjusted to provide your desired effects. The output limiter only affects the selected 6 main output busses. The Card limiter tracks affect only the tracks that are recorded on the CF card media.

Track Names



The track name menu allows for the naming of recorded tracks. The track names will be displayed within the card meters and are contained in the file metadata so post can easily identify the source of a recorded track. After the track name is entered you must pres OK for Nomad to accept the inputted name.

Monitor memory names



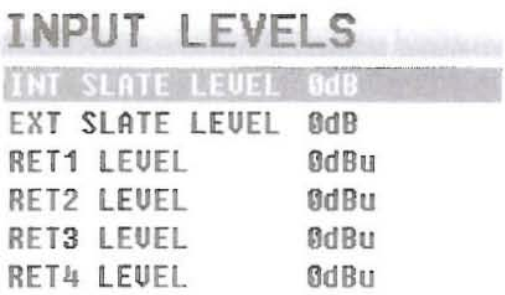
This menu allows you to customize the headphone monitor names that appear in the home screens so that you can identify the headphone memory.

Warnings

The Warnings setup menu allows for customization of the Nomad warning system. Warnings a provided for battery and external power level as well as recording time availability. Internal battery warning should be set to 7.0 volts for Nickle metal hydride batteries and 8.0 volts for lithium batteries. External battery threshold should be set to 10 volts.

The battery threshold settings select the voltage level at which the battery warnings start to appear. This setting also changes the scaling of the battery meter graphic to adjust for battery chemistry based on the dead voltage setting.

Input Levels



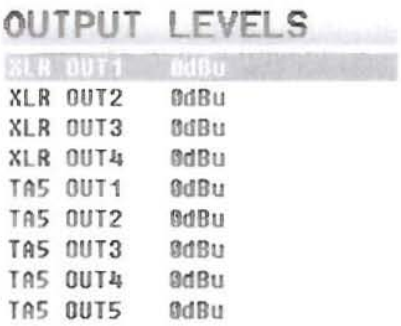
The input levels menu controls the levels for the slate mic inputs and the return level inputs. The return level inputs will effect inputs 7,8,9 and 10. Return 1-4 input adjust

These inputs are continuously adjustable to accept a line input level of +4dBu to -15 dBu. Since these inputs can also be used as line level inputs the return level adjustment provides a calibration for the input level of the R1-R4 inputs. (These inputs are sometimes referred to as inputs 7-10 when used to feed busses)

Internal and External slate level adjust

The internal slate microphone and external input connector input level adjust is continuously adjustable. Set the level to a comfortable operating level. (It is normal for the internal slate audio to have a high noise floor. This is due to the audio routing within the Nomads digital wiring section.)

Output Levels



The output level menu will allow the Nomad outputs to be selected at 0, -10 and -35 dB levels.

XLR 1-4 and TA5 1-6 output bus levels

The 6 main output buses can each independently be selected to three output levels. 0dBu (line level), -10dBu (tape / consumer level) and -35dBu (mic level). For example, output bus 1 can feed the XLR out at 0dBu and the TA5 at -35 at the same time.

Mono and tape out levels.

These outputs are continuously adjustable in 1 dB steps from -12dBu to +21dBu

Prefader effects

When a channel is routed pre-fader to a card track or output bus, it is usually desirable to route it without effects like notch filters and compressors. This setting will allow you to assign the effects to a pre-fade track. If you select this function to be on the effects will be assigned to all pre-fade channel it is a global function.

Transport Keys (Shifted/Unshifted)

Nomad factory default is set that the TC, Automix and Zaxnet buttons primary function are just that. And to go into record, stop or play you will have to hold down the menu key, as a shift key, then press the corresponding key. Nomad will allow the REC/STOP/PLAY keys to be un-shifted to provide direct access to their functions. Meaning if un-shifted is selected and you tap the record, stop, or play keys their functions will access immediately. In addition if the un-shifted is selected to then access the TC, Automix, and Zaxnet menus become shifted and you will have to hold down the menu button before hitting these keys.

Time Code

Nomad's time code input and output are located on the left side of the chassis. Two BNC connectors are used to connect nomad directly to broadcast cameras.

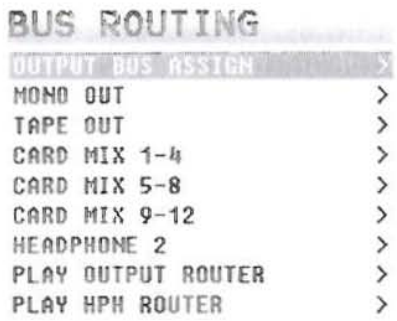
There are three time code menus available under the time code key.
Press the TC key to enter the first time code menu. Press the time code key again to enter the other time code menus. This first menu shows the current time of Nomads internal time code generator. Both the running time code and user bits are displayed. Nomad's time code reader will show incoming time code data as well as the rate of the incoming time code. This menu is used to jam incoming code as well as jamming to Nomads internal time code generator. Time code can also be jammed from Zaxnet if the system is in use.

The second time code menu allows for direct numeric entry of time code values. Rotate the menu knob to select the desired entry position. Then use the Nomads function keys to enter a numeric value. The "COM" (7/9) and "SLT" (8/0) keys are used to enter two numbers each as indicated by the front panel overlay. Once a time code value is entered press the back key to exit the function.

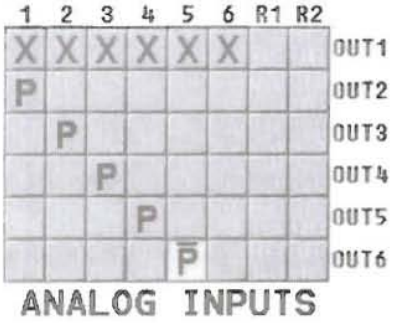
The third time code menu is used to set the operational mode of the nomad time code system. Nomad supports all standard broadcast time code rates. Both free-run and recorder run generator modes are also supported.

Nomad contains a battery backed real time clock. This clock is used to maintain running time code. The battery should be changed every 2 years in order to maintain the capability.

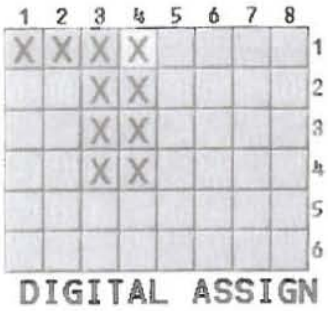
Bus Routing



Press the Bus key to enter the bus routing menu. This menu provides access to the routing of any input to any output as well as the record card routing. When in the bus menu press the bus key again to toggle through the additional bus menus.

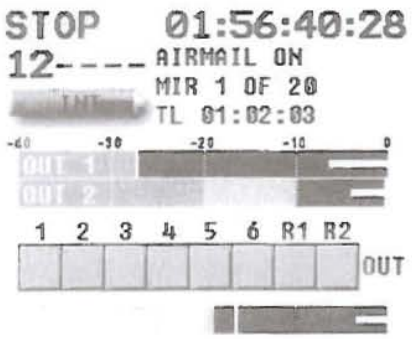


Nomad inputs are indicated along the top row of the routing display. Nomad output buses are indicated by the column along the right side of the display. Use the menu knob to select the desired cross point. Pressing the menu knob will toggle through the available cross points. Each bus menu will have different cross points available. Some menus allow for phase inversion of input cross points. Phase inversion is available by pressing the Star key while in the bus menu. This will enable the selection of phase inverted cross points. Since phase inversion cross points are seldom selected this system allows for a faster selection of common pre-fader and post-fader cross points. An "X" indicates a post fader cross point. A "P" indicates a Pre Fader cross point. An X or a P with a line over it represents that the phase is inversed. Bus routing is fully cross faded so selection may be changed during the nomad recording process.



Some bus point selections may be indicated with the color red. This indicates that cross points are not available in your current configuration. Go to the Input Configuration Menu to change the digital input selections.

Pre Fader Listen



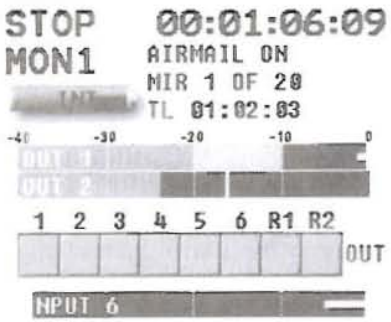
Press the PFL key to enter to pre fader listen function. The PFL monitor channels will be indicated on the home screen by a flashing PFL display. The home screen will show the channels that are selected for PFL. Use the six multi function keys to select the desired monitor channel or channels. Holding one of the 6 channel keys for .5 seconds will add a channel to the PFL mix. Quickly pressing the 6 channel keys will isolate the channel to be monitored.

Pressing the headphone knob will restore normal headphone monitoring selection.

Com and Slate functions

The com and slate keys are used to enable the internal or external slate microphone. Audio is routed to the selected destinations by the bus routing menus. These keys will route the audio from the slate microphone to the selected destinations. Slate cross points are indicated with an "S" at the top of the routing menu column. Com cross points are indicated with a "C" at the top of the routing menu column. The example shows the slate routed to outputs 1-2 and the com routed to outputs 5-6.

Holding down the menu knob and pressing the Com and slate keys will select different home menus. If the menu knob is not held down slate or com audio will be routed to there destinations when the keys are pressed. Selection of internal or external slate audio is designated in the mode menu. The slate microphone gain is controlled in the ENG setup menu.
If the external slate input is used, balanced dynamic microphones as well as 5.0 V powered two wire microphones are supported.



Select the ENG Home menu with the 8 channel routing matrix. This menu shows output busses 1 and 2 as well as the input meter indicating the auto trim function.

The pan routing matrix reflects the bus routing of busses 1 and 2 at all times. If PAN 3,4 or PAN 5,6 are enabled in the mode menu, utilizing the pan routing selection in the home menu will route bus 1,2 and the other busses that are selected in the mode menu.

To use the pan function , press the bus key to enter the PAN routing selections - the pan matrix will then be highlighted. Rotate the menu knob to select the input you want to PAN. Pressing the menu knob will assign the input as right, left or center to each input pair that was selected in the mode menu.

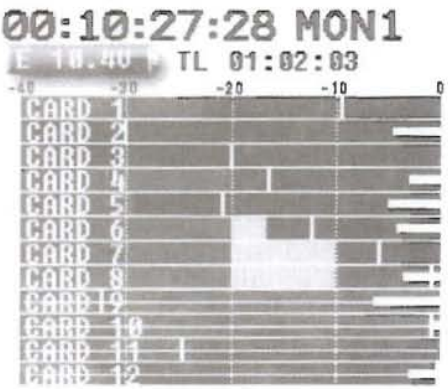
The PAN routing selection simply is a short cut and controls the cross points in the output bus routing menu. It can only route post fader analog inputs to the Nomad output busses. Any other routing must be done in the bus routing menu. When in the ENG home menu the "bus" key must be pressed twice to enter the bus routing menus.

If the pan cross point color is black this indicates that all busses under control are correctly reflected by the L,R, or C cross point character in the 8 bo x pan matrix. If the cross point color is red the Nomad is indicating that one or more of the controlled bus pairs is not correctly routed. Reselecting the pan cross point will clear the routing error condition.

10 channel mix operation

Select the 10 channel mix home menu with input meters 7-10. These meters incorporate 4 virtual faders. Pressing the menu knob will select an input fader for adjustment. Pressing the menu knob will cycle through inputs 7-10. Using the 6 input knobs and the 4 virtual faders 10 channels can be easily mixed with no need for external hardware fader panels. Virtual faders 7-10 are fixed and are not assignable. Input trim adjustments for channels 7-10 are accesable under the setup key by selecting 7,8,9 and 0 with the "com" and "slt" keys

Card operation



Nomad records 4-12 tracks depending on the model. When the card track meters are displayed each of the available recording tracks can be individually metered. If a line appears through a meter it indicates that the track is not being recorded on the primary media. The tracks can be turned on or off in the record enable menu which can be found within the main menu.

Nomad pin outs

AES in/out DB15 male small profile
(Use twisted pairs where possible)

1	RX34+
2	RX12+
3	TX56+
4	RX78+
5	RX56+
6	TX12-
7	TX12+
8	GROUND
9	TX 34-
10	TX34+
11	RX12-
12	RX34-
13	TX56-
14	RX78-
15	RX56-

All TA5 male input and output connectors

1	GROUND
2	CHA+
3	CHA-
4	CHB+
5	CHB-

All XLR inputs and outputs

1	GROUND
2	CH+
3	CH-

Mono and Tape out

Tip	Output
Ring	No connect
Sleeve	Ground

ALL Headphone Outs

TIP	CHA
RING	CHB
SLEEVE	GROUND

External slate mic in

Tip	INPUT+	(biased to 5V)
Ring	INPUT-	(biased to 5V)
Sleeve	Ground	

(This is a balanced input. It can be used with dynamic microphones. It can also be used unbalanced with powered low voltage microphones.)

Hirose power input

Ground	Pin 1
+8 to 18V	Pin 4

Specifications

Input	
Analog Inputs	6 Mic/Line-level with 48V phantom power 4 line-level (camera return or mix inputs)
Input Connectors	6XLR, 2 TA5
Analog Dynamic Range	115 dB
Mic-level Range	-56 to -26 dBu
Line-level Input Range	-10 to +8 dB
Distortion	0.0015%
Frequency Response:	20 Hz to 22 kHz at 48 kHz sample rate
THD + Noise	0.0015%
Input Clipping Level	+28 dBu
Input Limiters	6
Digital Inputs*	8 (3 AES pairs with SRC, 1 AES42 Pair with SRC) *
Digital Input Connector*	DB15 mini
High Pass Filter	adjustable, 30 to 240 Hz

Output	
Analog Outputs	4 Balanced XLR 0dBu,-10dBu and -30dBu 3 Balanced TA5 (6 Bus) 0dBu,-10dBu and -30dBu
Tape/Mono output	2 unbalanced 3.5mm 0dBu,-10dBu and -30dBu
Digital*	4 AES pairs (8 channels)
Line Output Clipping Level	+20 dBu
AES Output*	Mix or Direct out, user selectable
Headphone1	¼ inch stereo bus
Headphone 2	3.5 mm stereo bus
Analog Dynamic Range	115 dB

Zaxnet RF interface*	
2.4 Ghz Transmitter	50mW output power
Frequency Range	2.403 to 2.475 GHz
Modulation type	Spread spectrum
Bandwidth	1MHz
Connector	SMA female

Internal Mixer	
Mixer Type	32 bit floating point DSP
Mixer cross point	16 input x 16 output (Pre-fader / Post-fader / Phase Inversion)
A-D / D-A Conversion size	24 bit

Head Room	Selectable 12 to 20 dB
Effects	
Delay	0 to60 mS in .1mS steps
Notch Filter	2 band, 20 Hz to 20 kHz frequency range adjustable
Compressor Type	Soft Knee
Compressor Adjustments	Attack, Release, Threshold, Ratio, Make-up Gain
High Pass Filter	20 Hz to 230 Hz
Recording	
Tracks	4,6,8,12 tracks (Model dependent)
Pre-Record	0 to10 seconds
Sample Rates	44,100, 47952,48000,48048,88100,96000
Data Storage	
Internal	2 Compact Flash Card slots, 1 Micro SD card slot
External	USB 400
USB Host power	2.5 Watts
File Formats	
Internal Slot 1	Mobile Audio Recording Format (MARF) II
Internal Slot 2,3 / External	FAT32 writing Broadcast Wav mono or poly
File Resolution	24 bit or 16 bit selectable
Sample Rate	47952, 48000, 48048,88200, 96000, 96096
Misc.	
Delay	0 to 60 ms per channel
Serial	Zaxcom Propitary
Display	Full color LCD Sunlight readable
Meters	Output, Input, Card horizontal format
Size (H x W x D)	2.0" x 9.9" x 7.0"
Weight	3.8 lbs with internal battery
Power	
Internal	6AA 7-9 VDC, 2-4 hours of usage (NiMh)
External	10 to 18 VDC
External Power	8 to 18 VDC @ 300 mA
Battery Meter	on LCD display

All specification preliminary and subject to change
*Feature is model dependent